

ABSTRACT OF THE DISCLOSURE

A vertical cavity surface emitting laser (VCSEL) module that is configured to operate in a wide temperature range without severely minimizing its lifetime or requiring excessive drive current. The VCSEL portion of the VCSEL module is tuned to operate efficiently at a higher than normal temperature. In addition to the VCSEL, the VCSEL module includes a heater and a temperature sensor that are used to maintain a particular minimum temperature that is within the efficient operation range of the VCSEL. By maintaining a temperature that is within the efficient operation range, the VCSEL module reduces the current required to operate the VCSEL and extends the overall lifetime of the VCSEL. The additional components of the VCSEL module do not interfere in any way with the signal quality produced by the VCSEL.

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